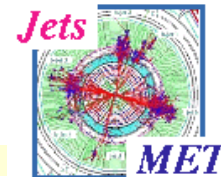




# HCAL in ORCA : Status and Plans

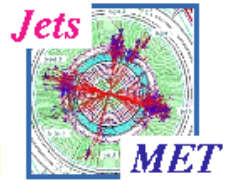


*S. Abdullin*





# Things Happened since June (I)...

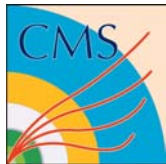


## ■ Couple of bad things were found in HF :

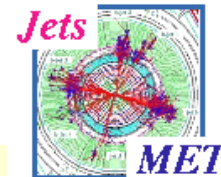
- ☞ Scale change was found in HF simulation (CMSIM)
- ☞ Inconsistency in `vcal.tz` data caused ORCA to mistreat eta positions in HF
- ☞ So spring-2002 production HF data suffer from these problems...

## ■ Feverish efforts to fix it in ORCA (early in July)

- ☞ Quick estimate of the energy scale correction finally led to some overestimate (12-13%) as was done yet without position correction ...
- ☞ RecHits and TrigPrims are corrected on fly when the data is retrieved via `Energy()` and `Position()`



# Things Happened since June (II) ...

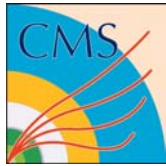


## ■ These fixed were **hardwired** in **ORCA 6\_2\_0**

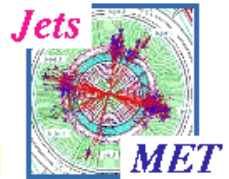
- ✎ Including L1 objects position in L1CaloTrigger !
- ✎ Sizeable amount of Jet/MET Ntuples produced till this moment (ORCA\_6\_1\_0) was discarded
- ✎ By the end of July new Ntuples have arrived, some 60 % of the final amount ...

## ■ Then a new problem in CMSIM was uncovered

- ✎ Apparently existed since quite a long time
- ✎ Overestimate of energy for particles with  $E > 1$  TeV in HF up to factor  $\sim 3.5$  due to error in the extrapolation procedure (actual HF shower library scale ends at 1 TeV)

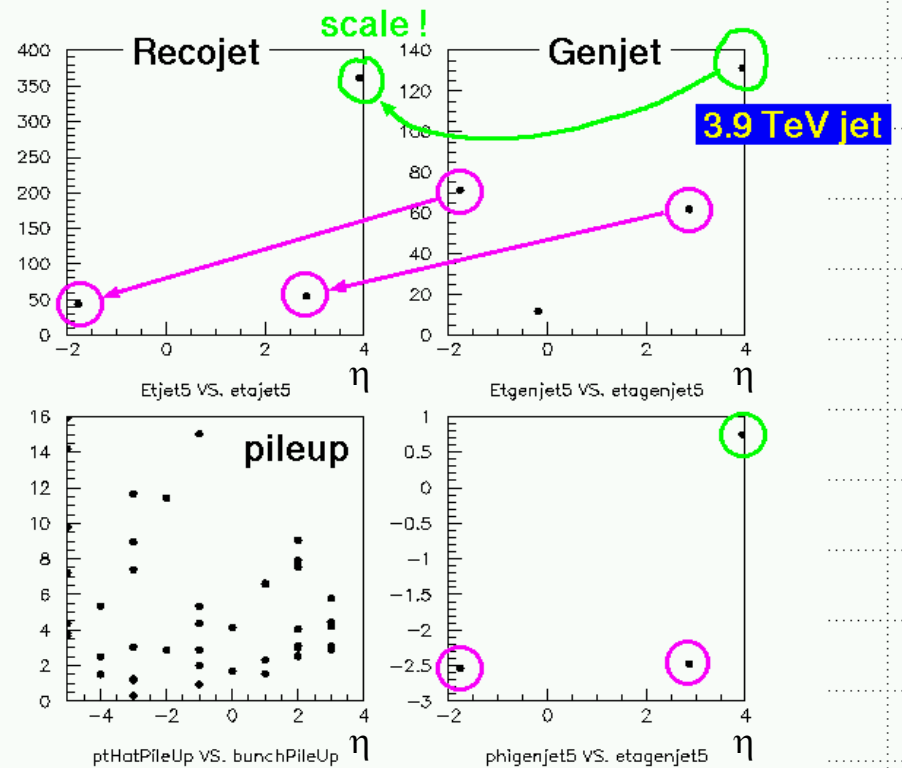
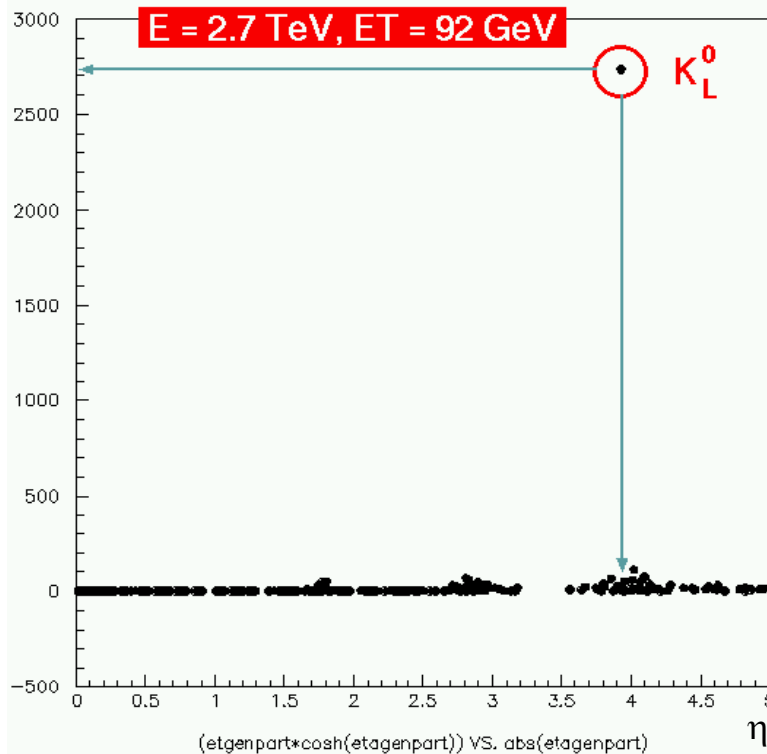


# Things Happened since June (III) ...



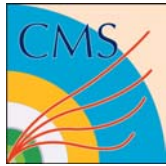
p<sub>that</sub> bin 80–120, ev# 7, run# 84 (@low lumi)  
p<sub>that</sub> = 106 GeV, L2 MET = 266 GeV, Genmet (calo scope +  $\mu$ ) = 4 GeV

ORCA 6\_2\_0 (HF bug fixed)  
current production

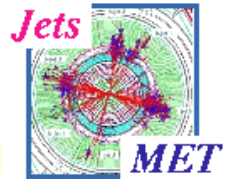


September 27, 2002

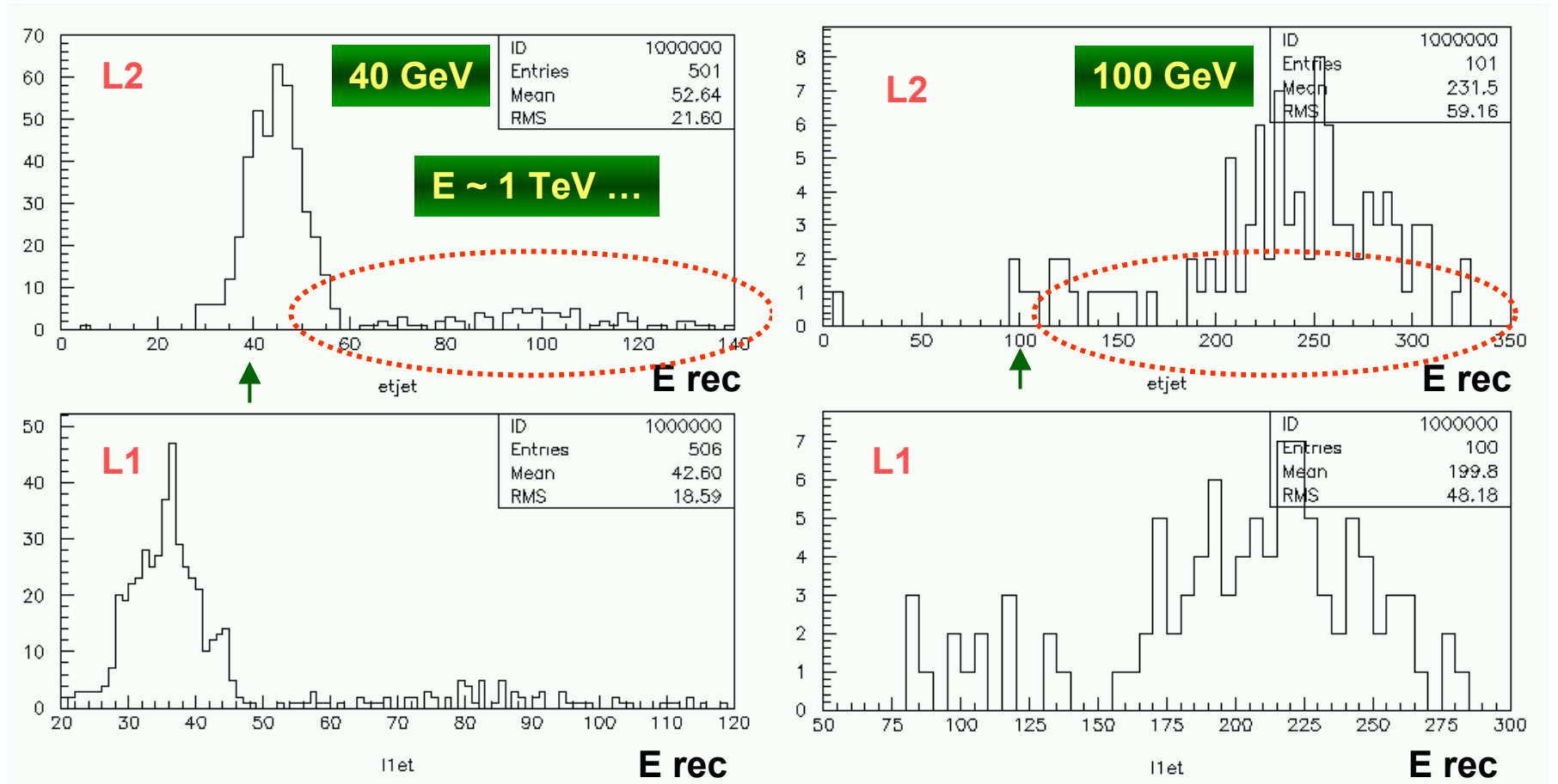
S.Abdullin (UMD)  
Hcal : Status and Plans



# Things Happened since June (IV) ...



$$\eta = 3.88-3.92$$



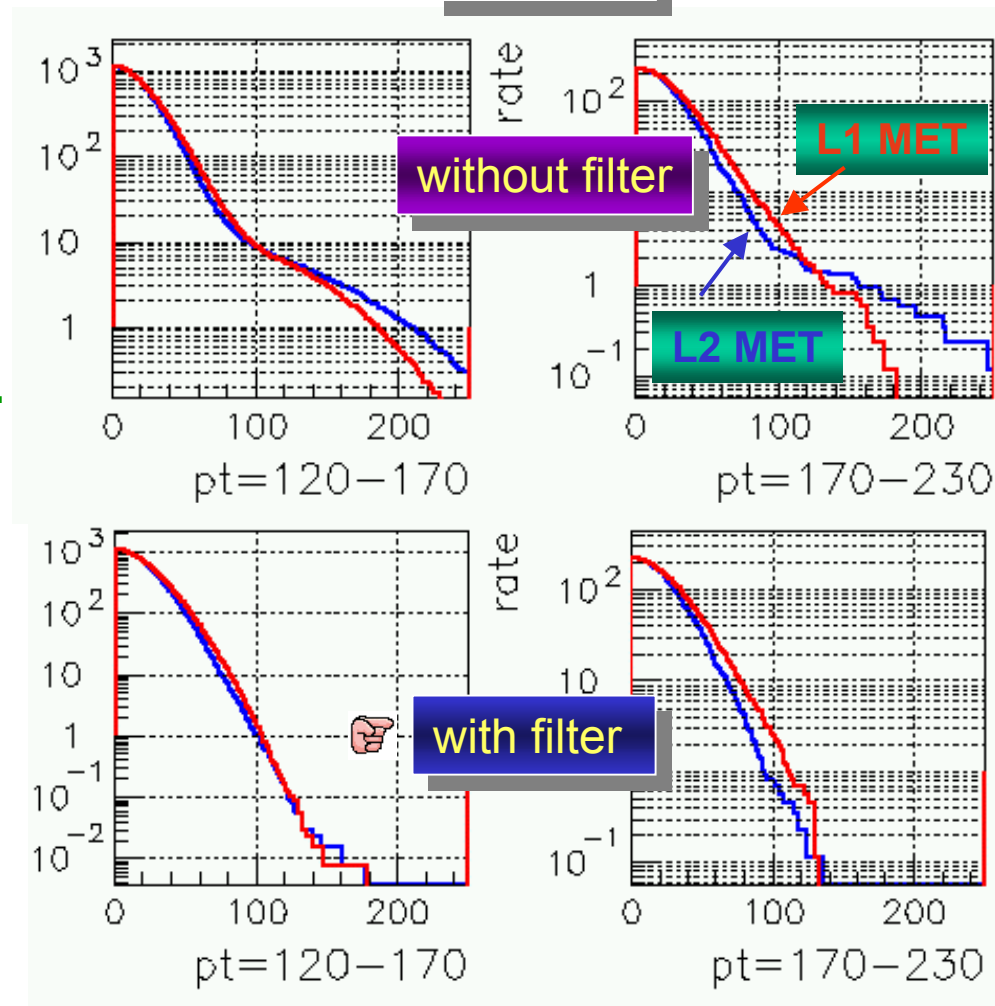
September 27, 2002

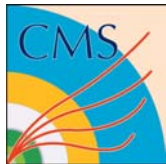
S.Abdullin (UMD)  
Hcal : Status and Plans

Low lumi

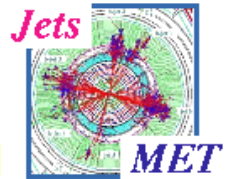
## ■ Ntuple filter proposed

- Filter out some  $\sim 0.8\%$  of the total stat.
- Filtered out events are eventually recuperated
- Shown : no noticeable effect on rates





# What's Next



- **HCAL Test Beam (July-September) provided much better understanding of the signal**
  - **Signal shape**
    - **Light yield ( $E \rightarrow pe$  conversion)**
    - **$\eta$ -dependence**
  - ☞ **Readout simulation code update foreseen by Xmas (?)**
- **Couple of small fixes to tag**
  - **Remove energy overscaling in HF**
  - **Correct “exotic” doADC=0 stream ...**
- **DDD-related upgrade of geometry ...**